Searching Smart
With Standards

Using Curriculum Standards to Find Educational Resources in Digital Libraries

Anne Diekema & Sheri Haderlie
Where to find our presentation

http://digitalcommons.usu.edu/itls_facpub/500
Educational standards

A Nation At Risk (1983) / National Commission on Excellence in Education

What was unimaginable a generation ago has begun to occur--others are matching and surpassing our educational attainments.
A Nation At Risk (1983) / National Commission on Excellence in Education

We have dismantled essential support systems which helped make those gains possible.

We have, in effect, been committing an act of unthinking, unilateral educational disarmament.
A Nation At Risk (1983) / National Commission on Excellence in Education

We recommend that schools, colleges, and universities adopt more rigorous and measurable standards, and higher expectations, for academic performance and student conduct, ....

- Compliance, Guidance, Accountability, Evaluation, Bargaining Chip, Standardization, Communication
Standards search (as phenom)

- Teacher information seeking
- Open Educational Resources (OER)
- Alignment between standards and resources allows for standards search
- Other educational resource search options
  - grade level
  - subject area
  - resource type, etc.
Standards crosswalks

Standards crosswalks show alignments between at least two different standards. For example, AASL created a crosswalk between the CCSS and the Standards for the 21st Century Learner.

Handy for collaboration between teachers and teacher librarians.

Handy for standards search with limited standards options (e.g., only national standards).

http://www.ala.org/aasl/standards-guidelines/crosswalk
<table>
<thead>
<tr>
<th>AASL English Language Arts Crosswalk - Grade 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC.3.R.F.4.b Fluency: Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression.</td>
</tr>
<tr>
<td>CC.3.R.F.4.c Fluency: Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</td>
</tr>
<tr>
<td>CC.3.R.I.1 Key Ideas and Details: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.</td>
</tr>
<tr>
<td>1.1.3 Develop and refine a range of questions to frame search for new understanding.</td>
</tr>
<tr>
<td>1.1.6 Read, view, and listen for information presented in any format (e.g., textual, visual, media, digital) in order to make inferences and gather meaning.</td>
</tr>
<tr>
<td>CC.3.R.I.2 Key Ideas and Details: Determine the main idea of a text; recount the key details and explain how they support the main idea.</td>
</tr>
<tr>
<td>CC.3.R.I.3 Key Ideas and Details: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.</td>
</tr>
<tr>
<td>1.1.7 Make sense of information gathered from diverse sources by identifying misconceptions, main and supporting ideas, conflicting information, and point of view or bias.</td>
</tr>
<tr>
<td>2.1.1 Continue an inquiry-based research process by applying critical thinking skills (analysis, synthesis, evaluation, organization) to information and knowledge in order to construct new understandings, draw conclusions, and create new knowledge.</td>
</tr>
<tr>
<td>CC.3.R.I.4 Craft and Structure: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.</td>
</tr>
</tbody>
</table>
Digital Library Examples

Teach Engineering: https://www.teachengineering.org/search_standards.php

PBS Learning Media: http://www.pbslearningmedia.org/standards/0

OER Commons: https://www.oercommons.org/advanced-search


Library of Congress: http://www.loc.gov/teachers/

Utah Education Network (UEN): http://www.uen.org/curriculumsearch/searchParams.action
TeachEngineering

STEM content
Collaborative project between faculty, students, and teachers associated with five founding partner universities, with National Science Foundation funding

- searchable, web-based digital library collection, free activities, lessons, units and living labs, and “sprinkles”
- standards-based engineering curricula for use by K-12 teachers and engineering faculty
- applied science and math through engineering design in K-12 settings

https://www.teachengineering.org/
CURRICULUM FOR K-12 TEACHERS
Standards-aligned engineering lessons and hands-on activities for use in science, engineering, and math classrooms.

Find Curriculum

Search 1,366 lessons and activities
TeachEngineering Standards Search

International, national (CCSS, NGSS), and state standards, and grade level

Standards search first then refine with search terms and grade levels

Results show standard and number of “hits”
Standards Source:

- Common Core State Standards for Mathematics

16 standards found

- Counting and Cardinality (K-K) ...show
  (1 lessons/activities/units aligned)

- Operations and Algebraic Thinking (K-5) ...show
  (52 lessons/activities/units aligned)

- Number and Operations in Base Ten (K-5) ...show
  (57 lessons/activities/units aligned)

- Measurement and Data (K-5) ...show
  (103 lessons/activities/units aligned)

- Geometry (K-8) ...show
  (123 lessons/activities/units aligned)

- Number and Operations—Fractions (3-5) ...show
  (16 lessons/activities/units aligned)

- Ratios and Proportional Relationships (6-7) ...show
  (122 lessons/activities/units aligned)

- The Number System (6-8) ...show
  (161 lessons/activities/units aligned)
Standards Source:

Common Core State Standards for Mathematics

Current Standard:
- Number and Operations in Base Ten (K-5)
  [57 lessons/activities/units aligned]

Standard's Subset:
- Work with numbers 11-19 to gain foundations for place value, (K-K) ...show
  (no curriculum aligned)
- Extend the counting sequence, (1-1) ...show
  (no curriculum aligned)
- Understand place value, (1-2) ...show
  (no curriculum aligned)
- Use place value understanding and properties of operations to add and subtract, (1-2) ...show
  (1 lessons/activities/units aligned)
- Use place value understanding and properties of operations to perform multi-digit arithmetic, (3-4) ...show
  (17 lessons/activities/units aligned)
- Generalize place value understanding for multi-digit whole numbers, (4-4) ...show
  (no curriculum aligned)
- Perform operations with multi-digit whole numbers and with decimals to hundredths, (5-5) ...show
  (37 lessons/activities/units aligned)
Aligned Curriculum

Aligned Activities
20/20 Vision
About Accuracy and Approximation
Magnitude of the Richter Scale
Scale Model of the Earth
Will It Conduct?

Aligned Lessons
The Building Blocks of Matter
Mercury and Venus
One Path

(17 lessons/activities/units aligned)

- Generalize place value understanding for multi-digit whole numbers. (4-4) show
  (no curriculum aligned)
- Perform operations with multi-digit whole numbers and with decimals to hundredths. (5-5) show
  (37 lessons/activities/units aligned)
- Understand the place value system. (5-5) show
  (8 lessons/activities/units aligned)
PBS LearningMedia

Thousands of classroom-ready, curriculum-targeted digital resources
Free resources for PreK-12 educators
Resources are aligned to Common Core & national standards

Videos and interactives, audio, documents, and in-depth lesson plans

Browse by standards, grade level, subject area, and special collections.
Social media: favorite and share resources with your class & colleagues.

http://www.pbslearningmedia.org/standards/0
PBS LearningMedia Standards Search

Browse by standard.
Select standard,
    then grade,
    and then keywords (optional).

Common Core (ELA, math) - college and career readiness standards, and national standards.
Browse by Standards

Browse by standards allows you to find all resources that support a given standards statement. Reference terms are assigned to each statement within a standards document and to each media resource, and correlations are based upon matches of these terms for a given grade band.

**Step 1: Select Standards and documents**

**Type of Standards** *

- Select Type of Standards

**Document** *

- Select Document

**Step 2: Select Grades**

- [ ] Pre-K
- [ ] K
- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [ ] 11
- [ ] 12
- [ ] 13+

**Step 3: (optional) Type Keyword(s)**
Browse by Standards

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<tbody>
<tr>
<td><strong>Type of Standards</strong> *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Document</strong> *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ -- Select Document --</td>
<td>Pre-K</td>
<td></td>
</tr>
<tr>
<td>Benchmarks for Science Literacy</td>
<td>K</td>
<td>1</td>
</tr>
<tr>
<td>College and Career Readiness Standards for Adult Education</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Content Standards</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Head Start Child Development and Early Learning Framework</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>National Health Education Standards</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>National Standards for History</td>
<td>8</td>
<td></td>
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<tr>
<td>National Standards for Physical Education</td>
<td>9</td>
<td></td>
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<tr>
<td>NSTA National Science Education Standards</td>
<td>10</td>
<td></td>
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<tr>
<td>Standards for Foreign Language Learning</td>
<td></td>
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<tr>
<td>The National Visual Arts Standards</td>
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**Browse by Standards**

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**Step 1: Select Standards and documents**

- **Type of Standards**
  - Common Core State Standards

- **Document**
  - College- and Career-Readin

**Step 2: Select Grades**

- Pre-K
- K
- 1
- 2
- 3
- 4
- 5
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- 7
- 8
- 9
- 10
- 11
- 12
- 13+

**Step 3: (optional) Type Keyword(s)**

- fractions
Step 1: Select Standards and documents

Type of Standards *
- Common Core State Standards

Document *
- College- and Career-Readin

Step 2: Select Grades
- Pre-K
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- 1
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Step 3: (optional) Type Keyword(s)

fractions

Statements

- Grade 6 Introduction 6 In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

- Grade 6 CCSS.Math.Content.6.NS The Number System
  - Grade 6 CCSS.Math.Content.6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
OER Commons

Digital library with open educational resources (OER)
Free resources - creative commons licenses
Users tag, rate, and review materials
ISKME nonprofit mission: improve practice of continuous learning, collaboration, and change in the education sector

https://www.oercommons.org/advanced-search
Your Commons, Their Future

We are a dynamic digital content hub offering a suite of OER supports. From roadmaps to training to tools, we'll get the right OER to your students.

OUR SOLUTION
OER Commons Standards Search

Regular search combined with additional criteria such as standards, grade level, subject, language, material type, rating, etc.
Standards search only at highest level. Drill down only at individual resource
Alignment not visible in results set (implicit in ranking)
Search results: fractions (78)

Selected filters: Common Core State Standards Math, Mathematics and Statistics

- **Fractions**
  - This interactive Flash applet can be used to compare and explore equivalence ...
  - Subject: Mathematics, Education
  - Material Type: Activities and Labs, Instructional Material, Interactive
  - Provider: Maryland Public Television
  - Provider Set: Mathlanding: Elementary Mathematics Pathway

- **Algebra: Fractions**
  - Today we are going to work on our fraction knowledge with some ...
  - Subject: Mathematics and Statistics, Mathematics, Education
  - Material Type: Activities and Labs, Games, Instructional Material
  - Provider: Instructional Architect
  - Provider Set: Instructional Architect
  - Author: Ms. Jackson
Fractions

Abstract: This interactive Flash applet can be used to compare and explore equivalence among fractions, decimals and percentages. It allows a child or teacher to represent fractions on one or more fraction strips, and to color individual parts. Each displayed strip can be labelled as a fraction, a decimal (to three decimal places) or a percentage; the ratio of yellow to green parts of each strip can also be displayed. It lends itself well to use with an interactive white board. A pdf guide to this collection of teaching applets is cataloged separately.
Rational Number Project: Initial Fraction Ideas
The Rational Number Project (RNP) advocates teaching fractions using a model that ...
(more)
Subject: Mathematics and Statistics, Mathematics
Material Type: Activities and Labs, Assessments, Homework and Assignments, Instructional Material, Lesson Plans, Teaching and Learning Strategies
Provider: Maryland Public Television, University of Minnesota
Provider Set: Mathlanding: Elementary Mathematics Pathway, University of Minnesota
Author: Kathleen Cramer, Merlyn Behr, Richard Lesh, Thomas Post

Fantastic Fractions!
Use these activities to practice your fractions First, find equivalent fractions by ...
(more)
Subject: Mathematics and Statistics, Mathematics, Education
Material Type: Activities and Labs, Instructional Material
Provider: Instructional Architect
Provider Set: Instructional Architect
Author: Mrs. Porock
Promethean Planet

“Created by teachers, for teachers, … a unique teaching, sharing and support community -- your place to connect, create, and change the classroom.”

Choose by State or Common Core or National Standard
Choose Grade
Search by State Standards

Search for lessons by State Standard with Promethean Planet

Search by State Standards:

Common Core  ▼  Science  ▼  10th Grade  ▼  velocity  ▼  Submit

Please select some options for your search
Displaying 1-7 of 07 results

Utah
10th Grade
Science

1.1.c. Distinguish between speed and velocity.
  - Acceleration

Utah
10th Grade
Science

1.1.d. Determine and compare the average and instantaneous velocity of an object from data showing its position at given times.
  - The Tides

Utah
10th Grade
Science

1.2.a. Determine the average acceleration of an object from data showing velocity at given times.
  - Acceleration
ACCELERATION

Description
Acceleration flipchart using Kagan Structures.
Library of Congress

“...classroom materials and professional development to help teachers effectively use primary sources…”

Lesson plans and more by Common Core, state content standards, or the standards of national Organizations.

http://www.loc.gov/teachers/
### Common Core State Standards, Grade 4

<table>
<thead>
<tr>
<th>CCSS.ELA-Literacy.RL.4</th>
<th>STRAND</th>
<th>Reading Standards for Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSS.ELA-Literacy.RL.4.1</td>
<td>CATEGORY</td>
<td>Key Ideas and Details</td>
</tr>
<tr>
<td></td>
<td>STANDARD</td>
<td>Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</td>
</tr>
</tbody>
</table>

Library of Congress Classroom Materials

- 8 Classroom materials:
  - 2 Primary Source Set
  - 1 Lesson Plans
  - 1 Presentations
  - 4 Collection Connections
Primary Source Sets

Civil War Soldiers' Portraits: The Liljenquist Family Collection
A selection of Library of Congress primary sources exploring the Civil War portraits in the Liljenquist Family Collection of Civil War Photographs from the Library of Congress. This set also includes a Teacher’s Guide with historical context and teaching suggestions.

Found Poetry
A selection of Library of Congress primary sources exploring found poetry and the ability to retell history from one’s own perspective. This set also includes a Teacher’s Guide with historical context and teaching suggestions.

Lesson Plans

The Civil War Through a Child's Eye
Students use Library of Congress primary sources to examine the Civil War from a child’s perspective.

Presentations

Women Pioneers in American Memory
This presentation uses Library of Congress primary sources to provide a comprehensive look at the stories of women who forged ahead to make a better life for themselves, their families, and their societies in the Westward expansion.

Collection Connections

American Notes: Travels in America
Historical context and ideas for teaching with primary sources from the Library of Congress. Travels in America, 1750-1920.

Florida Folklore from the WPA Collections, 1937-1942
Historical context and ideas for teaching with primary sources from the Library of Congress. Folklore from the WPA Collections, 1937-1942.

Lesson Overview

The Civil War through a Child’s Eye
A selection of Library of Congress primary sources exploring Civil War historical events. Specific perspective.

Following an introduction to Fleischman’s Bull Run in Children, then students read and write, and US history standards.

Objectives

Students will:
- differentiate between
- understand multiple
- analyze and interpret
- make inferences about
- create a literary port
Utah Education Network

Connects all Utah school districts, schools, and higher education institutions to a robust network and quality educational Resources

http://www.uen.org/curriculumsearch/searchParams.action
Mathematics Grade 7

Course Description

Core Standards of the Course

Domain: Ratios & Proportional Relationships

Analyze proportional relationships and use them to solve problems.

Links

1. Compute unit rates associated with ratios of fractions, including distances given in different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2 divided by 1/4 miles per hour, which is 2 miles per hour.

Teaching Materials:

- Core Curriculum
- Educational Links
- Lesson Plans
- eMedia Videos

CURRICULUM SEARCH

eMedia Videos

The Ascent of Man. Music of the Spheres.
Fine Arts - Music, Mathematics
Traces the evolution of mathematics and explores the relationship of numbers to musical harmony, early astronomy and perspective in painting. It follows the spread of Greek ideas through the courts and bazaars of the Islamic Empire to Moorish Spain and Renaissance Europe.
Duration: 50 min 3 sec

Cyberchase. Episode #102-Castleblanca.
Mathematics
To find Marbles, the kids must master the art of properly collecting data, organizing it and graphing the results -- results which are sometimes surprising! Math target: teaching how to interpret and use data.
Duration: 28 min 58 sec

Cyberchase. Episode #103-R-Fair City.
Mathematics
Disguised as a gypsy, Hacker lures Digit to a fantastic amusement park and holds him captive. When the kids arrive, they analyze the games of chance, figuring out which games are fair and which ones are not, and use what they learn to find Hacker.
Duration: 28 min 52 sec
Become Standards Search Savvy

Get a handle on all applicable standards
Find crosswalks between standards or create your own
Maintain list of digital libraries with standards search
Note search options
Share with teachers (professional development, etc.)
Real life

Please share your own standards
search experiences
Reference

Additional digital libraries
with standards search options

Other libraries we found but did not demonstrate

**gooru**: [http://www.goorulearning.org/#home](http://www.goorulearning.org/#home)

**ABC Teach**: [http://abcteach.com](http://abcteach.com)

**NSDL**: [http://nsdl.oercommons.org](http://nsdl.oercommons.org)

**CK-12 Foundation**: [http://www.ck12.org](http://www.ck12.org)
Where to find our presentation

http://digitalcommons.usu.edu/itls_facpub/500